

MISSOURI

resources

Fall 2007 • Volume 24 • Number 3



Director's Comment

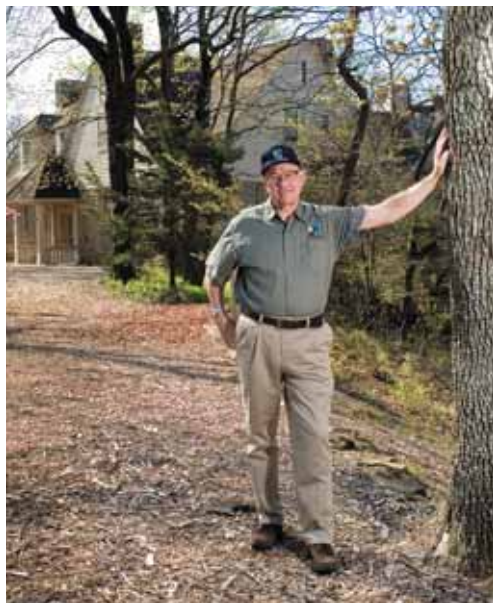
I enjoy getting out of the office this time of year and visiting some of our 83 state parks and historic sites. In April, I visited Bothwell Lodge State Historic Site near Sedalia. In June, I enjoyed fishing at Bennett Spring State Park in Lebanon. I also learned some fascinating history while visiting the Nathan Boone Homestead in Ash Grove.

In July, Gov. Matt Blunt encouraged the Missouri departments of Natural Resources and Conservation to work together to create a new state park along the Current River in Shannon County, on the site of the historic former Alton Club.

The Shannon County property is currently under the oversight of the Department of Conservation. When structures on the property were recently placed on the National Register of Historic Places, both state agencies realized the facility might be a better fit for the Department of Natural Resources, which manages Missouri's 83 state parks and historic sites.

This is the second state park Gov. Blunt has added to Missouri's state parks system since the official dedication of Morris State Park near Campbell in 2005.

I have also spent time gathering feedback from the public over the past few months. Since 2005, the ombudsmen and I have attended 88 town hall



meetings across Missouri with more than 1,400 city and county government members, elected officials, business representatives, local media and citizens in attendance. In all, our ombudsmen have contacted nearly 3,800 people in the past two years.

Ombudsmen receive permit questions, often

with a simple solution, more than anything else. The number two most common comment is compliments regarding our staff's high level of professionalism and commitment to serving Missouri's communities.

In our ongoing effort to help the regulated community comply with environmental standards, we recently launched Permit Assistant, an online tool available at [www.dnr.mo.gov/mopermitassistant]. Learn more about the Permit Assistant in this issue's News Briefs section.

Listening to our constituents helps us identify broader trends which, in turn, generates more effective ways to do business and improves our service to the citizens of Missouri.

I invite you to enjoy one of our state parks or historic sites this fall.

Doyle Childers
Missouri Department of Natural Resources

MISSOURI resources

Fall 2007
Volume 24 • Number 3

State of Missouri
Governor
Matt Blunt

Director, Missouri Department
of Natural Resources
Doyle Childers

Deputy Director, Operations
Jeff Staake

Deputy Director, Policy
Floyd Gilzow

Deputy Director, Water Resources
Mike Wells

Director, Division of State Parks
Doug Eiken

Director, Division of Geology
and Land Survey
Mimi Garstang

Director, Division of Field Services
Jim Macy

Director, Division of Environmental Quality
Dan Schuette

Director, Environmental Improvement
and Energy Resources Authority
Tom Welch

Editor
Stuart Westmoreland

Assistant Editor
Philip J. Tremblay

Editorial Board
Hylan Beydler
Kerry Cordray
Kathy Deters
Dawn Fredrickson
Connie Patterson
Kenneth Seeney
Stuart Westmoreland

Design Director
Belinda Hughes

Designer
Ruby Wells

Photographer
Scott Myers

Circulation
Luke Petree
Jessie Buschjost

Mission Statement

The mission of the Missouri Department of Natural Resources is to protect, preserve and enhance Missouri's natural, cultural and energy resources.

MISSOURI RESOURCES

is published three times per year by the Missouri Department of Natural Resources to inform readers about important natural resource issues and how they are being addressed. Any correspondence should be directed to the editor at the Department of Natural Resources, Publications, P. O. Box 176, Jefferson City, MO 65102-0176, or call 1-800-361-4827. E-mail address: moresdnr@dnr.mo.gov MoDNR home page: www.dnr.mo.gov

MISSOURI RESOURCES

is available in alternative formats.

As a recipient of federal funds, the Department of Natural Resources cannot discriminate against anyone on the basis of race, color, national origin, religion, age, sex, or disability.

If anyone believes he or she has been subjected to discrimination for any of these reasons, he or she may file a complaint with either the Department of Natural Resources or the Office of Equal Opportunity, U.S. Department of the Interior, Washington, D.C., 20240.

Missouri Resources is printed with soy ink on recycled paper at RR Donnelley, Liberty, Missouri.



printed on recycled paper



table of contents

Missouri Department of Natural Resources

page 2

Diverse Skills Suit Parks' Mission

Keeping a nationally acclaimed state park system on top of its game takes more than a few grass trimmers and lawnmowers. Missouri State Park construction crews are on the job in every corner of the state – and their skills are as diversified as the parks they work in.

page 6

Big Muddy Goes Online

If you already know that the most underutilized recreational opportunity in the state is the Missouri River, then you're already all wet. For the rest of us, there's a new Web site that will get us up to speed and ready to take on the new Lewis and Clark Water Trail.

page 10

CSI: Environment

Department of Natural Resources environmental investigators say it's amazing what some people will do to avoid complying with environmental rules and regulations. Dumping trash in a roadside ditch is obviously wrong and visible for all to see. But not every violation is easy to find and some are serious threats to public health and the environment.

14 • News Briefs

E-Notes, Letters, Stream Team Notebook,
Time Exposures, Resource Honor Roll

20 • Resources to Explore

St. Joe State Park

23 • Teacher's Notebook

Career Connection –
"Shrinking Resource Equals Growing Field"

25 • One Last Word

Tree-Planting Effort Sets State Park Record



DNR photos by Scott Myers

Above right: Missouri River travelers canoe past the Manitou Bluffs, south of Rocheport.

Above: Fall colors the foliage at Crowder State Park.

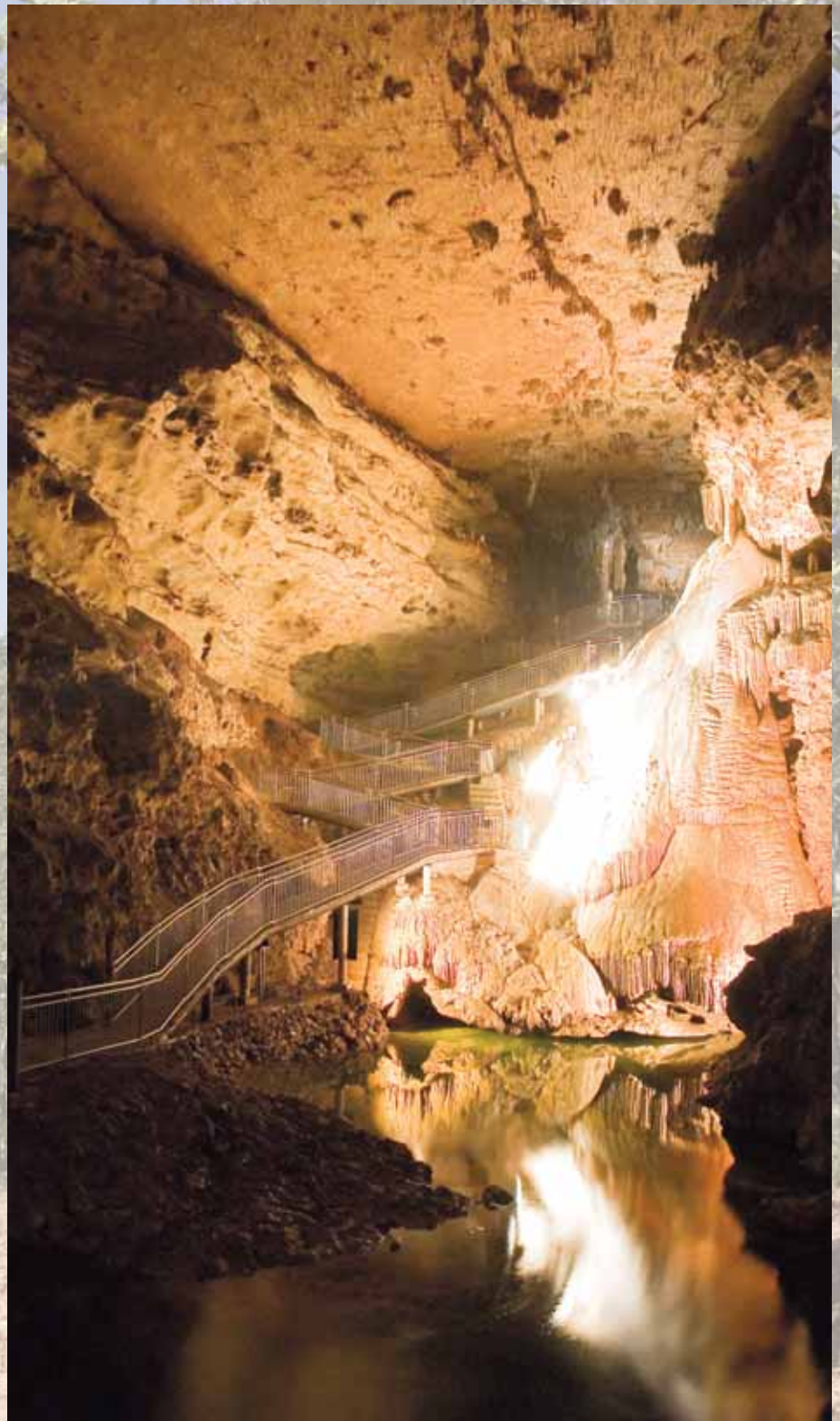
FRONT COVER: Jeff Page, a volunteer at Rock Bridge Memorial State Park, visits the Chocolate-Vanilla Room at Devil's Ice Box.

BACK COVER: Tracey Thorsen, Mary-Jane Thorsen (front left), and Travis Thorsen, visit Knob Noster State Park.

Cover photos by Scott Myers.

DIVERSE SKILLS SUIT PARKS' MISSION

by
John Balkenbush
Chris Crocker
Dawn Fredrickson



DNR photos by Scott Myers

From the cool, labyrinthine depths of Onondaga Cave State Park, through the sultry ancient hardwood swamps of Big Oak Tree State Park, to the stately Victorian-era home of Missouri painter Thomas Hart Benton, state park construction crews painstakingly maintain and en-

hance the treasures of Missouri's state park system.

The Missouri Department of Natural Resources' Division of State Parks maintains four in-house construction crews located throughout Missouri: the statewide unit, in Jefferson City; the east unit, in Festus; the north unit,

in Brookfield; and the south unit, in Lebanon. Each crew has staff trained in carpentry, masonry, electrical, plumbing, concrete work and other facets of the construction industry. Additionally, each crew has dedicated staff to operate heavy equipment such as backhoes, bulldozers and dump trucks. An additional component of the statewide unit is the trail crew, responsible for constructing many of the state park system's trails, boardwalks and overlooks.

The versatile construction crews support the unique state park mission: to preserve and interpret the finest examples of Missouri's natural landscapes and cultural landmarks, and to provide healthy and enjoyable outdoor recreation opportunities. The division's crews accomplish this mission every day through projects that maintain and preserve the system's park and historic site structures and features, while providing a means for safe public access and enjoyment.

Within the past five years, the crews have completed more than 700 projects, both large and small. Many of these projects were unplanned or emergency projects that required the assistance of the crews, either because park staff did not have the time or expertise, or because specialized equipment was required. An example of an emergency project recently occurred at Onondaga Cave State Park, located near Leasburg in Crawford County. Severe ice storms and loss of power resulted in damage to the ceramic tile floor in the gift shop. The statewide unit began work on Feb. 26, with only three days until official cave opening. Work was completed and the gift shop was opened as scheduled. Doug Eiken, director of the department's Division of State Parks, lauded the value of the construction crews, saying, "Our crews allow us the flexibility to make repairs as necessary in order to maintain uninterrupted visitor access."

Providing public access without degrading the natural or cultural characteristics of these facilities is perhaps the greatest challenge faced by the crews, often requiring consider-

able ingenuity. This was demonstrated at a recently constructed walkway in Big Oak Tree State Park. The park, near East Prairie in Mississippi County, is located in the Bootheel region of the state and preserves remnants of lowland swamps containing massive oak and bald cypress trees. In addition to these majestic trees, the park also

cave's grandeur. The east construction unit drilled approximately 1,200 3-inch diameter holes through solid rock and concrete to accommodate the handrail posts. Also, the crew designed a unique system of fasteners that precluded the need for welding. This not only enhanced the appearance of the handrails, but also saved



DNR photo by Scott Myers

(Opposite page) A new handrail graces Onondaga Cave at Onondaga Cave State Park. **(Above)** A construction crew replaces the roof on the Civilian Conservation Corps restroom at Bennett Spring State Park. It was damaged by last winter's ice storms.

protects many rare plants and animals. Replacing an old wooden boardwalk with a new steel walkway in this sensitive environment, the crew faced the task of transporting equipment into the area without impacting the natural surroundings. This required designing a series of moveable, elevated platforms that attached to the sides of the 3,500-foot long steel walkway as it was being built.

Creative design also was required in the replacement of more than 8,000 linear feet of handrails along walkways within Onondaga Cave at Onondaga Cave State Park. While handrails may seem mundane, they ensure the safety of cave visitors, protecting them from possible falls from the great heights that are part of the

time and kept welding gases away from the fragile cave environment.

The Division of Labor Standards, Mine and Cave Safety and Health Program, which issues permits for cave tours, praised the project. Following an inspection, a letter from the federal agency stated, "Your handrail project is not only thorough and above expectations, but actually adds to the aesthetic beauty of the surrounding cave."

Not all state park construction is completed by the in-house crews. Many larger-scale projects, such as the Emory Melton Inn at Roaring River State Park, are contracted to outside construction companies. Projects requiring specialized equipment, such as an asphalt milling project at

Bennett Spring State Park, are also contracted to private firms. This project, part of a larger statewide campground renovation project, required removing asphalt roadways in the old campground. Rather than landfill this material, it was ground up by a local contractor and used as bedding material for utility line installation.

One of the most valuable aspects of maintaining in-house crews comes from the combined difficulty of having projects located in remote locations that often require specialized skills or services not readily available in those areas. When renovations were

required for some of the Civilian Conservation Corps (CCC) cabins at Sam A. Baker State Park, located near Patterson in Wayne County, the east construction unit was in charge. The crew preserved certain visual aspects of the historic cabins as well as original materials when possible. Including modern comforts while maintaining a historic appearance requires a delicate balance, one the construction crews have perfected over the years.

Other projects have benefited from the crews' historic craftsmanship skills, including ongoing restoration at Thomas Hart Benton Home and

Studio State Historic Site, in Kansas City. The site preserves the Victorian-era house and studio of Benton, Missouri's most renowned 20th century artist. Much of the original furnishings and studio remain as Benton left them. Maintaining the site requires sensitivity to the appearance of the buildings. The north construction crew was asked to replace the roofs on both the home and studio, repair or replace rotted exterior wood siding and trim, replace deteriorated gutters and downspouts, and paint both structures. A hazardous materials abatement contractor was hired to remove lead paint on the exterior woodwork, but the crew repainted the structures themselves, using appropriate materials and methods to maintain the historic integrity of the site.

Possibly the crews' biggest and most visible project is Katy Trail State Park, the nation's longest completed rails-to-trails conversion. Begun in the early 1990s and cutting a 225-mile crushed-limestone swath through the middle of Missouri, the Katy Trail offers visitors an unparalleled recreational experience.

Building the trail posed one of the most daunting logistical challenges of all the projects undertaken by the construction crews. The trail traverses nine counties and a variety of landscapes with very limited road access, virtually landlocked by private property, steep bluffs and the Missouri River. Because of its narrow 12-foot width, crews had to coordinate the delivery of thousands of tons of surfacing rock as well as coordinate the operation of bulldozers, graders, and compactors in a linear one-way process. Numerous railroad bridges were rebuilt to pedestrian standards with wooden decking and ornate, but code-compliant, railings.

In addition to the incredibly complex logistics of constructing the Katy Trail, a natural disaster early in its existence nearly consumed the trail. In 1993 and 1995, two of the largest

Danielle and Bob Airoidi of Fenton try out the new metal boardwalk at Big Oak Tree State Park.



DNR photo by Scott Myers

flood events in recent history in the Missouri River valley shattered lives, decimated communities, washed away rich farmland, and nearly destroyed much of the fledgling Katy Trail State Park. As flooding became imminent, the construction crews shifted their efforts and equipment to helping the trailside communities sandbag and prepare for the worst. After the floodwaters receded, the crews were again at work surveying the damage, reestablishing road crossings and helping to open access for affected landowners along the corridor. Due to their incredible efforts, the trail was reconstructed and trailside amenities were promptly repaired or completed.

Not all of the projects completed by the crews have been this visible, although most are as important in the continued delivery of exemplary service expected by the more than 16 million annual visitors to Missouri's state parks and historic sites.

One such project, nearly invisible to most visitors but crucial to the operation of the park, was the replacement of aging sewer lines, lift stations and manholes at Roaring River State Park, near Cassville in southwest Missouri. The result of this work has saved thousands of dollars and has reduced groundwater infiltration to such a degree that discharge from the lagoon has not been necessary. These subtle but extensive improvements will have a lasting impact on the environment and overall water quality.



DNR photo by Dawn Fredrickson

(Above) Members of the statewide construction unit, Randy Richards, standing, Joe Lehman and Jerry Immell, construct boardwalks at Big Oak Tree State Park.

(Below) Michael Hare, front, and Ray Rush of the statewide construction unit, work on reroofing the CCC restroom at Bennett Spring State Park. In the background is Steven Hedgpeth, who works with the Parks division's south construction unit.

From big to small projects, when flexibility and attention to sensitive environmental and cultural elements are required, when working in remote locations or sometimes inhospitable conditions are often a given, the Missouri state park system's in-house construction crews continually demonstrate a staunch adherence to the Division of State Parks' mission.

"Their professionalism and specialized skills ensure the preservation of the valuable resources the division is charged with protecting," said Eiken. 🌞

John Balkenbush is capital improvements budget section chief for the Division of State Parks; Chris Crocker is section chief for the division's construction section; and Dawn Fredrickson is section chief for the division's planning section. The three contributed to the writing of this article.



DNR photo by Scott Myers

Big Muddy Goes Online



Web Site Helps Paddlers Set Course

by Larry Archer

DNR photos by Scott Myers

Canoeists with Mighty Mo Canoe Rentals paddle past Manitou Bluffs, south of Rocheport. (Above) Each float trip begins with a safety demonstration.



Students in Cheri Norman's fourth grade class at Wanda Gray Elementary School in Springfield get plenty of paddling, but no one goes home crying.

Instead of experiencing corporal punishment, these students experience the same sights and sounds as Corporal Richard Warfington, a member of Lewis and Clark's Corps of Discovery, as they paddle down the Missouri River from Rocheport. The annual nautical field trip, the first of which launched in 2006 during the bicentennial of the Corps' return, is used to reinforce the class's studies of Missouri history, Norman said.

"Fourth grade is our Missouri History year, and the only time in their academic experience that they're going to study Missouri history," she said. "We talk about the Missouri River all year, and it's great that we're on it in a canoe."

In response to a growing interest in the Missouri River, Gov. Matt Blunt directed the departments of Natural Resources, Conservation and Economic Development to collaborate on the Lewis and Clark

Water Trail. The trail, the longest river water trail in the nation, "opened" May 1 with the unveiling of its Web

Planning Your Missouri River Float

When making a checklist of what to take on a float trip on the Missouri River there is always one thing that should top the list – respect.

"This can be a beautiful river to paddle, but you have to give it every bit of respect that it deserves," said Bryan Hopkins, a Department of Natural Resources environmental educator, Lewis and Clark Water Trail coordinator and an avid Missouri River kayaker. "You have to remember that it is a very powerful river, with its own set of unique hazards, and continues to host commercial barge traffic."

Respecting the river starts with properly planning your outing; the Web site [\[www.missouririverwatertrail.org\]](http://www.missouririverwatertrail.org) the official Web site of the Lewis and Clark Water Trail – offers paddlers all the tools needed for a successful Missouri River float.

Because the river has long stretches of relative isolation, it is important to carefully map out your trip. The Lewis and Clark Water Trail Web site can help paddlers identify launch and take-out points, including features along the way. The Web site includes static and interactive mapping features and global positioning system data that can be downloaded into handheld GPS units.

River levels and river-level forecasts are two other important factors in trip planning. Higher river levels can hide potential hazards such as wing dikes just below the water's surface. Knowledge of water levels can help paddlers anticipate unseen troubles. The Web site has links to live river level readings as well as to the National Weather Service's river level forecasts.

The site's Paddling Tips page includes suggestions on navigation, sand bars, weather, and boat selection and gear. The River Safety page addresses issues such as use of life jackets and how to deal with barge traffic.

David Miller, a geography professor from State University of New York's College at Cortland, paddled the entire length of the Missouri River over three summers. He is the author of *The Complete Paddler*, a comprehensive guide to paddling the river.



DNR photo by Bryan Hopkins



DNR photo by Scott Myers

site, [www.missouririverwatertrail.org]

The Web site is designed to be the complete information resource for those interested in floating the river.

The Lewis and Clark Water Trail Web site includes information on the river, maps identifying access points and public lands, tips on paddling the river, safety considerations and links to other Web sites with useful information. Paddlers can use the site to plan their entire river trip (see sidebar).

“All the tools are there for experienced paddlers to plan their own trips, while the inexperienced canoeist or kayaker can use it to identify outfitters who offer guided tours,” said Bryan Hopkins, a Department of Natural Resources environmental educator, Lewis and Clark Water Trail coordinator and avid river paddler.

Norman coordinated her class’s trip through Mighty Mo Canoe Rentals, a Rocheport business that specializes in getting people onto the Missouri River. Mighty Mo Canoe Rentals owner Brett Dufur has offered guided tours since 2004.

“There’s something that happens on these floats that goes beyond the typical float trip scenario. People’s eyes just seem to open to the river, and it’s like you’re lifting a veil,” said Dufur, himself an avid paddler and author of *Exploring Lewis and Clark’s Missouri*. “You take normal people and get them out there, and they feel like they’re doing something extraordinary. They come off wondering why there aren’t more people out there doing it.”

Most paddlers are already familiar with the state’s popular spring-fed floating rivers

(Above) Asa Lory and John Lory, background, of Columbia, load a canoe at Katfish Katy’s ramp in Huntsdale. (Right) Michael Bodine, Columbia, paddles past the I-70 bridge.



DNR photo by Scott Myers

of south Missouri, but the Big Muddy offers a floating experience enhanced by the river's history as the state's original super-highway, Dufur said.

"I'm a huge fan of history – of Lewis and Clark," he said. "When you paddle that river you immediately reconnect with history. Paddling the Missouri River is the closest thing to getting in a time machine and going back 100 years."

Officials hope that increased interest in paddling the river will lead to an increase in businesses like Dufur's and a revival of riverfront towns throughout the state. They base these hopes on the state's experience with Missouri's other cross-state trail, Katy Trail State Park. Rejuvenated by traffic along the 225-mile hiking and bicycling trail, many communities have seen an economic renaissance, with new bike shops, restaurants, general stores, bed and breakfasts and specialty shops springing up.

"The Lewis and Clark Water Trail has the potential to duplicate the tourism and economic success of Katy Trail State Park by adding to Missouri communities' resurgence along the former railroad route and river," Gov. Blunt said in launching the Web site in May. "This helpful Internet site will make it easy for water sport enthusiasts in Missouri and across the nation to learn more about the outstanding opportunities for adventure tourism along the Lewis and Clark Water Trail."

Of Katy Trail State Park's 200-plus miles, 150 miles – from Rocheport to St. Charles – run along the river, meaning that paddlers can take advantage of amenities communities have already established to serve cyclists and hikers. Taking advantage of the twin trails, Dufur offers to shuttle his clients' bicycles to their take-out point so they can ride back to Rocheport.

Having seen the economic power of Katy Trail State Park first-hand as a businessman and as Rocheport's mayor, Dufur's vision mirrors that of the governor. "As much as that river was our past, it's just as much our future now," he said. "It's the right kind of jobs, and it's attracting the right kind of people."

So, if the river offers such great potential, why aren't, as Dufur's customers ask, "more people out there doing it?" The river has a reputation for being more than just muddy. Most people look at it as a dangerous place to be on the water.



DNR photo by Scott Myers

"The Missouri River just has this huge stigma," Dufur said. "Ironically, it's only Missourians that have this stigma about the Missouri River."

It is a reputation, however, that is not without foundation. Lewis and Clark's journals refer to the river's dangers, and its length throughout the state is littered with the remains of riverboats lost to its sandbars and submerged trees. Today's paddlers still contend with a big and powerful river that can leave them subject to the effects of weather, and requires a paddler be mindful of wing dikes and the barges that continue to work on the river.

"This is a wonderful river to paddle, but it remains a working river. It is such a powerful river, that it demands you respect it while you enjoy it," Hopkins said. "It's not a place to learn to canoe for the first time. The best way to get on the river is with a paddler experienced with the river or with a guided trip."

It is the river's reputation that causes people to raise a wary eyebrow in Norman's direction when she mentions taking nearly two dozen elementary school students – with their parents – on the river. But in the hands of an experienced guide, the apprehension turns to awe as they float away from the houses and highways and see Missouri as Lewis and Clark saw it.

"Even though you float under I-70, you don't realize there's civilization on the other side of the bluff," Norman says. "These kids just walk away with a memory they'll never forget." 🌅

Larry Archer is division information officer for the department's Field Services Division.



DNR photo by Scott Myers

(Top) Brothers John Phillips, left, and Sam Phillips prepare to return to the river after stopping at Katfish Katy's ramp in Huntsdale. (Above) A kayak rests on the riverbank while a canoe glides past.

CSI: Environment

Environmental Investigators Protect Public Health, Prevent Environmental Crimes

by Kathy Deters

Picture it, CSI: Environment. A group of investigators dedicated to protecting public health and safety by investigating environmental crimes.

Sound like a new TV drama? It's not.

In fact, it's a group of environmental investigators employed by the Missouri Department of Natural Resources. The unit's mission is to help citizens prevent pollution and to protect the public from harmful emissions, discharges and waste disposal practices.



DNR photo by Terry Ball

DNR file photo

DNR photo by Terry Ball

Three investigators comprise the department's Environmental Investigation Unit. Using both new and traditional techniques, these staff members investigate a variety of threats to the environment. They protect Missouri's water resources by investigating illegal discharges into water, illegal land application, water quality issues and confined animal discharges. They keep Missouri's air clean by investigating stack emissions pollution, open burning, asbestos emissions and fugitive dust emissions. And they protect our land resources by investigating illegal dumping of solid waste, demolition waste, tires and hazardous waste.

"On any given day, we may be setting cameras at a dump site in the morning, interviewing wastewater treatment plant operators in the afternoon and watching a known hazardous waste dumpsite throughout the night," said Terry Ball, an environmental investigator for the Missouri Department of Natural Resources. "The variation is never-ending, but eventually most environmental crimes come around to cutting corners to save money."

Though they may not have their own television show, the department's environmental investigators provide an important line of defense against some of the very worst kinds of pollution. Between 1996 and 2001, wastewater discharges from the Tyson chicken processing plant near Sedalia contaminated a nearby stream with oxygen-robbing chicken blood and other processing wastes. A combined effort among the department, the U.S. Environmental Protection Agency, the FBI and the Missouri Attorney General's Office resulted in 20 felony counts and a \$7.5 million dollar fine.

In addition to endangering the public health, environmental crimes can take a toll on Missouri's economy. When a farmer's cattle began dying after drinking from an area creek, the department's environmental investigators traced the discharge of thousands of gallons of chicken fat into the creek back to a dog food plant in Rolla.

The team helped crack some high-profile cases, as well. When it was suspected that someone in the St. Louis area was manufacturing and selling fraudulent vehicle emissions testing certificates, for example, environmental investigators were called in to help confirm the suspicions.

The Gateway Clean Air Program was designed to achieve the state's goal of reduc-

ing ground-level ozone in the St. Louis nonattainment area. Under this program, vehicles registered in this area must have an emissions test before the vehicle owner can renew the license plates. When fraudulent certificates began to show up at Department of Revenue offices, revenue fee office agents contacted the Department of Natural Resources environmental investigators. Staff from the department's Environmental Investigations Unit began investigating the case in cooperation with agents from the U.S. EPA's Criminal Investigation Division.

Interviews with vehicle owners who had presented the fraudulent certificates led the investigators to several car repair shops that were selling fake certificates. Investigators watched the shops until they had enough information to execute search warrants.

During questioning, shop owners directed the investigators to another individual. A search of the individual's home revealed hundreds of discarded practice certificates,

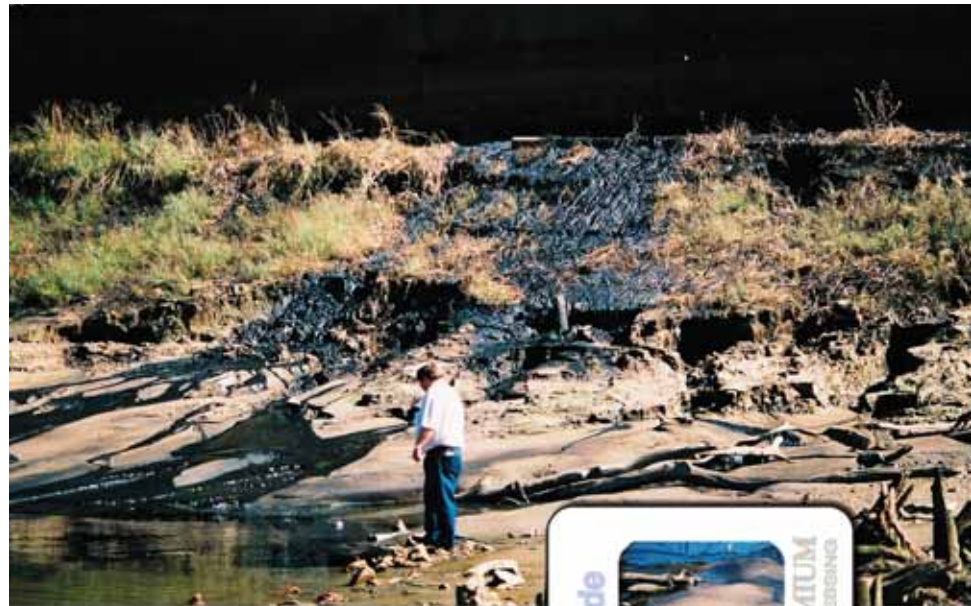
(Opposite page, background) A tire fire near Bolivar, in Polk County.

(Opposite page, inset left) A counterfeit emissions certificate is documented.

(Opposite page, inset right) A concealed camera records illegal dumping in Saline County.

(Below) Molasses flows from a barge and into the Mississippi River south of downtown St. Louis.

(Below, inset) Department investigators discovered the molasses spill while monitoring barge dumping and cleanout operations. Molasses can cause fish kills because it depletes a large volume of oxygen from the water.



DNR photos by Terry Ball

computers and printers and artist tools used to make the fraudulent certificates. In fact, as investigators entered the individual's home to conduct the search, a new prototype certificate was coming out of the suspect's printer. The suspect pled guilty to manufacturing nearly 4,000 fraudulent emissions certificates. He was sentenced to a year and a day in jail and fined \$10,000.

"Being able to catch people engaged in activities like this is critical to protecting the public health," said Doyle Childers, director of the Missouri Department of Natural Resources. "The pollution released by

"There will always be a few who blatantly disregard the health and safety of



DNR photos by Scott Myers

"under cover"

(Photo and insets) Investigator Terry Ball sets up a hidden camera to record illegal dumping activities in Missouri.

poorly functioning vehicles makes it very hard to breathe for Missourians who suffer from asthma and other respiratory illnesses. This crime could have potentially enabled thousands of cars to continue polluting, posing a serious health risk to those living in the St. Louis area."

The State of Missouri used information gained from this case when developing the new Gateway Vehicle Inspection Program scheduled to begin September 2007. Small businesses, such as vehicle repair shops that are licensed by the state to perform emissions inspections, will be required to use fraud-resistant inspection equipment and vehicle identification features. These features will give the State the information necessary to prevent fraudulent inspection attempts. In addition to preventing inspection fraud, the new system will provide paperless vehicle registration verification directly to the license offices, preventing vehicle registration fraud.

In October 2002, environmental investigators began to suspect that a Valley Park landfill operator was underreporting waste. Working with the U.S. Postal Inspection Service, investigators discovered that quarterly reports of waste accepted at the landfill had been underreported. A search of the landfill's business office revealed a document trail that showed that the landfill owner had pocketed substantial amounts of cash from the business. It also showed that he had failed to accurately report how much waste was being accepted and how much he owed in tipping fees to the State of Missouri and St. Louis County. The owner pled guilty to mail fraud and was ordered to divest himself from the operation. He also was ordered to pay more than \$300,000 in restitution to the state and county.

"Fraud is a recurrent theme in many environmental crimes, and takes the form of the spoken word, printed document or the intentional absence of a paper trail," Ball said.

of their neighbors ... ” - Terry Ball, MoDNR environmental investigator.



Environmental investigators rely on a variety of techniques when gathering information for investigations. Recently, hidden cameras at illegal dumpsites have helped catch criminals dumping a variety of waste, such as household trash, roofing materials, appliances, motor oil, waste tires, mattresses and box springs. Sample videos are available on the department's Web site at [www.dnr.mo.gov/videos/index.html].

These dumpsites serve as an ideal breeding ground for rodents, snakes, mosquitoes and other little nasties. If these illegal dumpsites catch fire, they can pose a serious threat to local air and water quality. These sites also are a public nuisance and may lower property values.

Using hidden video cameras with motion and vibration sensors, investigators are able to catch illegal dumpers in the act. Many of these individuals dump at sites repeatedly. By prosecuting these individuals, communi-

ties may require them to pay the cost of cleaning these sites up, rather than passing these costs on to law-abiding citizens. In some instances, the court has ordered convicted dumpers to participate in the polluted site's cleanup.

In 2005, the department's environmental investigators teamed up with the Meramec Regional Planning Commission to catch those responsible for an illegal dumpsite that had plagued Phelps County for more than 20 years. The department installed a hidden camera at the site and turned the video it collected over to the commission, which identified three illegal dumpers. With this information, local officials were able to hold these individuals accountable and shut down the illegal dump.

The hidden camera program is so popular that it has garnered calls from environmental officials looking for tips on implementing similar programs in several other countries, including Canada, Puerto Rico and Spain.

Because environmental investigators investigate many different types of pollution, they must have a broad knowledge base, and they must be able to communicate well with field staff. To be effective, an environmental investigator must also possess a unique set of skills.

“Investigators must often rely on their ability to separate fact from fiction during interviews or in looking through documents,” Ball said. “I may not always know how many parts per million it takes to make a substance a hazardous waste, but I can tell if you are lying about how or why you disposed of it the way you did.”

The department has numerous programs in place to assist Missourians in complying with environmental rules and regulations. Most Missourians understand and appreciate the value of our natural resources and choose to live and work within these laws.

Hidden cameras helped catch several illegal dumpers at this abandoned quarry in Cole County, leading to its eventual cleanup.



DNR photo by Terry Ball

By going after the few who don't, environmental investigators help to ensure that businesses that work to comply with all environmental regulations are not competing with those that cut costs by breaking the law.

Ball concludes, “There will always be a few who blatantly disregard the health and safety of their neighbors and place a higher value on saving a dollar or two over being good to the environment that supports us all.” ☀

Kathy Deters is a public information coordinator for the department.

Clean Water Initiative Boosts Community Water Projects

Gov. Matt Blunt has announced that the state will issue \$50 million in bonds to assist Missouri communities who are facing problems related to drinking water and wastewater treatment.

While these bonds have been authorized in the past, they were not issued until Gov. Blunt did so. The loans and grants from the Clean Water Initiative will be administered by the Department of Natural Resources' Water Protection Program and are limited to counties, municipalities and water or sewer districts.

The department has initially allocated the \$50 million in funds as follows: Sixteen million for 40 percent state construction grants for wastewater related projects; \$12 million for rural sewer grants targeted for rural and special needs communities; \$12 million for rural drinking water projects; and \$10 million in direct loans for water or wastewater projects, including planning loans for wastewater facilities.

For more information about the Clean Water Initiative, contact Connie Patterson at (573) 751-1010.



Fund, which is a federal program that can be used to acquire, develop and renovate outdoor recreation projects.

The Missouri Department of Natural Resources received 48 applications requesting more than \$1.9 million in grant funding. The State Inter-Agency Council for Outdoor Recreation made the award recommendations. Recommendations went to projects with the highest score based on meeting the recreational needs of the communities, planning goals and unique or specific attributes. All projects require a 55 percent match. The funds are made available through the U.S. Department of Interior's National Park Service and the National Park Service must approve the recommendations before the grants are awarded.

For more information on the Land and Water Conservation Fund grants, contact Connie Patterson with the Department of Natural Resources at (573) 751-1010.

Bennett Spring State Park Asphalt Recycling Project

A renovation project for a campground at Bennett Spring State Park, located near Lebanon, involved the removal of 50 existing campsites and the replacement of the utility systems for an enhanced campground with more spacious campsites and modern utilities. A common element in the old and new campground is the asphalt. As part of the site preparation process, existing asphalt roads and campsites were demolished. The old asphalt was milled using special machines that ground the existing asphalt into small pieces. These pieces were stockpiled for reuse as bedding material for utility trenches. Milling the old asphalt saved the state time, fuel and equipment costs by avoiding a typical demolition and removal process. Additionally, reusing the asphalt material kept approximately two thousand tons of base material from being disposed of in a landfill. This project demonstrates how improvements in the state park system reflect practices in keeping with the mission

"Permit Assistant" Now Available

Permit Assistant is a new on-line tool the Missouri Department of

Natural Resources has launched that will make it easier to do business in Missouri. It is designed to help those seeking permits by making information easily accessible on the department's Web site. Permit Assistant is available on the department's Web site at [www.dnr.mo.gov/mopermitassistant].

The new online program is part of the department's ongoing effort to ramp up compliance assistance. Other recent compliance assistance improvements have included a re-designed Web site, improvements to the permitting process, the availability of the department's manuals online, the addition of several new satellite offices and implementation of the Ombudsmen Program.

Many businesses obtain permits from multiple offices within the Department of Natural Resources. Permit Assistant enables business owners

and their consultants to find all the needed permits without having to contact individual programs.

Using Permit Assistant, anyone with access to the Web may answer a series of questions to determine which permits or registrations their businesses will need from the department. Permit Assistant then provides links to the necessary permit application forms. Permit Assistant also provides links to phone numbers in case additional information is needed. Those with little experience with permitting in Missouri will find Permit Assistant particularly helpful.

Recommended for Recreation Grants

Gov. Matt Blunt has announced that 25 Missouri communities will be recommended to the National Park Service

to receive more than \$755,000 in federal grants to assist with park and recreation needs. The grants are part of the Land and Water Conservation



of the Department of Natural Resources and the successful use of materials, techniques and technologies that can be duplicated by others.

Awards to Protect Drinking Water

The Missouri Department of Natural Resources has selected 21 public drinking water supplies to receive \$236,903 to protect drinking water sources in the state.

The grant recipients will use the money to fund a wide range of activities, including decommissioning abandoned wells, developing educational materials or installing security fencing. The purpose is to protect the lakes, rivers, streams and groundwater that serve state drinking water supplies. Priority was given to community water systems with approved well-head protection plans.

This is the first year the department has offered source water protection grants. The grants are funded by a Drinking Water State Revolving Fund set-aside. Fifty-three funding requests, totaling nearly \$1 million, were received.

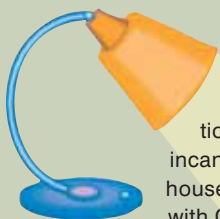
Applicants to receive funding for 2007 include: Andrew Public Water Supply District #2 – \$2,790; Barton/Dade/Cedar/Jasper County Public Water Supply District Consolidated #1 – \$21,900; Bourbon – \$14,820; Brunswick (Missouri American) – \$9,600; Caledonia – \$1,900; Cardwell – \$4,449; Clarksville – \$13,500; Fayette – \$1,800; Hopkins – \$2,010; Kingston – \$4,000; Lamar – \$14,400; Lake Country Village Property Owner's Association – \$1,093; Maries Public Water Supply District #1 South – \$12,950; Mexico (Missouri American) – \$3,000; Platte City – \$45,002; Pleasant Hope – \$11,845; Sedalia – \$45,133; Senath – \$2,500; Sheridan – \$13,000; Spickard – \$1,467.75; Wayne/Butler Public Water Supply District #4 – \$9,744.

For more information, call the department's Public Drinking Water Branch at 1-800-361-4827 or (573) 751-5331.



environmental notes

Compact Fluorescent vs. Incandescent



In June 2006, the Environmental Defense, a 40-year-old group founded by scientists and financed by private donations, initiated a campaign to encourage the public to switch from incandescent bulbs to compact fluorescent bulbs. It asks every household in the U.S. to replace three 60-watt incandescent bulbs with CFLs – a 15-watt CFL is as bright as a 60-watt incandescent.

Environmental Defense claims that if every household were to do this, the change could reduce pollution as much as taking 3.5 million cars off the road.

A compact fluorescent has clear advantages over the widely used incandescent light — it uses 75 percent less electricity, can last up to 10 times longer, produces 450 pounds fewer greenhouse gases from power plants and saves consumers \$30 over the life of each bulb. The estimated payback period for buying the CFL instead of the incandescent bulb is 500 hours, which is 100 days at 5 hours per evening. Due to continued price drops, American discount stores now offer CFLs for as little as \$1.66 each. This allows consumers to repay the price of a CFL even faster, resulting in greater overall savings.



In September 2006, Wal-Mart started a campaign to sell one CFL to every one of their 100 million customers within the next year to change the energy consumption of the United States. If the giant discount retailer succeeds in selling 100 million CFLs a year by 2008, total U.S. sales of the bulbs would increase by 50 percent, saving Americans \$3 billion in electricity costs and avoiding the need to build additional power plants for the equivalent of 450,000 new homes. But Wal-Mart sold only 40 million CFLs in 2005, compared with about 350 million incandescent bulbs, according to company figures.

In March 2007, a coalition of industrialists, environmentalists and energy specialists announced intent to seek "a market phaseout" of the incandescent light bulb by 2016 and replace it with compact fluorescents, light-emitting diodes, halogen devices and other technologies that may emerge by that time. The coalition says that a complete phaseout would save \$18 billion a year in electricity, and save the amount of power that would be produced by 30 nuclear reactors or as many as 80 coal plants. It would also eliminate substantial mercury emissions from the coal plants, they said.

The new bulbs – lighted by sparking an efficient chemical reaction, rather than heating a metal filament – seem ungainly, take several seconds to fully light up and often do not fit into traditional light fixtures. Then there is the mercury inside the bulbs, a problem Wal-Mart is working with the federal government and environmental groups to resolve, possibly by collecting the bulbs at its stores or off-site locations for recycling.

On the other hand, incandescent bulbs produce substantially more heat than CFLs for a given light output. During cold months, incandescent bulbs can help heat buildings; but during hot months, incandescent bulbs place additional strain on air conditioning systems.

Amazingly, CFLs have been around for 28 years but are still several times as expensive as a traditional bulb and often give off a harsher light. Only six percent of households use CFLs today and getting home users to change the bulbs in the estimated four billion sockets in the U.S. would probably require eliminating the choice.

EIERA Funds Brownfield Cleanups

The Missouri Environmental Improvement and Energy Resources Authority



has awarded \$15,000 to the St. Louis-based Red Brick Community Land Trust to address petroleum-related contamination of a Soulard brownfields site.

The EIERA is a financial support agency within the Missouri Department of Natural Resources.

The trust was established in 2001 as a non-profit organization to secure long term affordable housing for low-income residents in the St. Louis metropolitan area. The cleanup will enable a residential development to proceed on property in the Bohemian Hill neighborhood, part of the Soulard area.

A brownfield site is property where expansion, redevelopment or reuse may be complicated by the presence or potential presence of a hazardous substance, pollutant or contaminant.

EIERA has received a \$1 million grant from the U.S. Environmental Protection Agency to establish the Missouri Brownfields Revolving Loan Fund that will provide loans and subgrants for cleanup of sites contaminated with petroleum and hazardous substances. EIERA works with the Missouri Department of Natural Resources to support brownfields cleanup activities so that redevelopment and reuse of properties can proceed.

For more information, call Kristin Allan Tipton at EIERA at (573) 751-4919.

Twelve Communities Obtain Water Grants

The State of Missouri has awarded \$57.4 million to Ashland, Ironton, Kirksville, Linn, Osage Beach, Ozark, Raytown, Richland, Seneca, Spring-

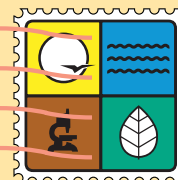
field, Warrensburg and Washburn to improve drinking water and wastewater treatment facilities. The awards are possible through the state revolving fund, a perpetual loan program operated by the Missouri Department of Natural Resources.

The program provides subsidized, low-interest loans to communities and public water and sewer districts statewide. The loans are used to construct water and wastewater treatment facilities. Federal funds from the U. S. Environmental Protection Agency provide 80 percent of the loan pool with a 20 percent state match.

To date, the program has financed \$1.80 billion of construction statewide and provided interest savings of over \$550 million to its participants as compared to conventional financing.

For more information, contact the department's Water Protection Program at (573) 751-1192 or visit [www.dnr.mo.gov/env/wpp/srf/index.htm].

Letters intended for publication should be addressed to "Letters," *Missouri Resources*, P.O. Box 176, Jefferson City, MO 65102-0176 or faxed to (573) 522-6262, attention: "Letters." Please include your name, address and daytime phone number. Space may require us to edit your letter. You also can e-mail *Missouri Resources* staff at moresdnr@dnr.mo.gov



The article that Ms. Lovejoy wrote on Branson Landing (Spring/Summer 2007, Vol. 24, No. 2) was interesting, but I was disappointed that she didn't mention anything about the traffic jams these thousands of visitors are creating, using the pre-World War II roadways. It took me one and one-half hours to travel from the exit off of Highway 65 to across the lake on a Tuesday afternoon at 1:00 p.m.

Jim Coleman
St. Charles

"Missouri Underground," what a great idea (Winter 2007, Vol. 24, No. 1). Before I retired, I documented many of Missouri's treasures with outdoor editor and newspaper writer William E. Seibel, also retired. I believe we Missourians will never reach the apex of what the Show-Me State has to Show Us. The use of this space underground is an example of our frontier spirit. Daniel B. and Davie C. may have opened up the surface of the Midwest, but folks like DNR geologist John W. (Bill) Whifield just may be one of our little-known "New Frontiersmen."

Thank you Kathy Deters, Jim Vandike and *Missouri Resources* for digging up an excellent report.

T.V. Vessell
Pevely

I recently read your Spring/Summer 2007 issue with so many different environmental topics. It was interesting reading about the newer public water filtration systems available today. Being able to utilize scrap tires for water filtration is quite unique. Thank goodness Missouri is getting involved in wind-generated electricity. It is also satisfying to see you helping kids get involved in outdoor activities that focus on the environment and wildlife. It was especially enjoyable reading about turkey litter being used as a heat source, sort of like the buffalo chips used back in the old days.

A soon as I get a car, I'm going to start recycling again.

Marie Wetherell
St. Louis

Missouri Receives Brownfields Grants



The Missouri Department of Natural Resources will receive \$400,000 in brownfields assessment grants from the U.S. Environmental Protection Agency.

EPA selected 10 of the 18 Missouri proposals submitted in a national competition. The 10 proposals from five recipients total \$2.8 million.

The department, one of the five recipients, will receive a \$200,000 assessment grant for hazardous substances and a \$200,000 assessment grant for petroleum. The department will use the funds to conduct 30 Phase I and nine Phase II environmental site assessments, primarily in rural towns and suburban ring communities. The department will use the petroleum grant funds to perform site assessments at sites with potential petroleum contamination.

The other four grant recipients are as follows: City of Aurora, a \$200,000 grant to clean up mine wastes adjacent to Baldwin Park; Kansas City, a \$200,000 assessment grant for hazardous substances, a \$200,000 assessment grant for petroleum to conduct Phase II site assessments in four city areas, and \$200,000 to clean up the Cherry Street Inn site; the Kansas City Port Authority, two grants totaling \$400,000 for cleanup activities for the Northeast Landfill and the South Coterminous Area at the former Richards-Gebaur Defense Site property; and the City of Springfield, a \$200,000 assessment grant for hazardous substances to inventory sites and perform 15 Phase I and five Phase II environmental site assessments within the Jordan Valley planning area, and a \$1 million revolving loan fund grant that will support cleanup activities for contaminated sites.

The department's Brownfields/Voluntary Cleanup Program can help resolve brownfield issues so redevelopment and reuse of these sites can proceed. For more information on the assessment grants, contact the de-

partment's Brownfields/Voluntary Cleanup Program at 1-800-361-4827 or (573) 526-8913.

Few Lake Coves Test High for E. Coli

The first round of water testing to gauge levels of E. coli in Lake of the Ozarks water began May 29, after Memorial Day weekend.



Out of 62 water samples taken in 14 different coves, three had levels of E. coli bacteria that exceed the state standard. All three samples were taken from coves in the Horseshoe Bend area – two in the Jennings Branch Cove at the 1-mile marker, the third at Cove 009, between Cherokee Road and Kays Point Road.

In July, only one of the 62 samples indicated an unacceptable level of E.

Stream Team Notebook

Camdenton Teacher Makes a Splash with Stream Team

Integrating math, science, art and other curriculum into one activity is not an easy task, but making it interesting is even harder. Bart Gulshen, a teacher with the Capstone Program in the Camdenton School District, has done just that for many of his students. By using the Stream Team Program to teach students through hands on activities, Gulshen works to make learning fun for his seventh- and eighth-grade students.

Over the course of the year, Gulshen takes his seventh-grade students on six Stream Team related field trips. These trips include instruction on canoeing, biological and chemical water quality monitoring, visual stream surveys and trips for fishing, additional water quality monitoring and a river cleanup. Gulshen uses these trips to reinforce the ideas taught in the classroom. Gulshen says he not only wants to teach students about environmental problems, but show them how they can be part of the solution. To this end, he also continues to monitor the Niangua River during the summer with his former students.

Over the past six years, Gulshen has used the Stream Team Program to give youths a new and different look at science. Gulshen started Stream Team 2042 in 2002 while working for the Division of Youth Services. For the past four years, he has been using Stream Team as a teaching tool, most recently with the 37 students from the Capstone Program. Capstone is a program for gifted and talented students.

Gulshen monitors six sites along the Niangua River and Spring Branch in Central Missouri. The Stream Team Program is a cooperative effort between the Missouri Department of Natural Resources, the Missouri Department of Conservation and the Conservation Federation of Missouri. For information about the Stream Team Program, visit www.mostreamteam.org.



Photo by Bart Gulshen

Seventh graders from the Camdenton Capstone Stream Team test the water quality of the Niangua River.



TIME EXPOSURES

Send your photo to "Time Exposures," c/o *Missouri Resources*, P.O. Box 176, Jefferson City, MO 65102-0176. All pictures will be returned via insured mail. Pre-1970 environmental and natural resource photos from Missouri will be considered. Please try to include the date and location of the picture, a brief description and any related historic details that might be of interest to our readers.



On July 8, 1919, the stalwart log farm home of Mr. and Mrs. Bender hosted young visitors from a neighboring farm and far away St. Charles. William W. Kronmueller's mother, Florence Mieke took the "Frisco" train to St. James, where she was met by her friend Margaret Kroner and escorted to the 340-acre Kroner farm, six miles west of Meramec Springs. The Kroner family raised wheat, using animal power only. This photo was taken on the front porch of the Bender farm home, three miles further west of the Kroner farm. The Benders, standing at left, raised grapes and produced wine on their farm. Seated on the steps were Florence, left, and Margaret. Mr. Kronmueller, now a retired professional engineer from O'Fallon, provided the photo and notes from a family photo album.

coli in the water. In Cove 009, there were a total of five water samples taken. The state standard is 126 units per milliliter. The sample that raised concern was 228 units per milliliter.

The testing, conducted by the Missouri departments of Natural Resources and Conservation along with a group of volunteers from the Lake of the Ozarks Watershed Alliance, is the first in recent years to check E. coli levels. Coves between the one- and 16-mile markers were tested several times over several months.

Failing wastewater treatment or septic systems, leaking municipal sewer lines, a malfunctioning lift station or high concentrations of waterfowl, can cause elevated readings. Bacteria levels also can be influenced by weather and temperature changes. In the main channel, constant movement of the water helps flush the lake out. The concentrated levels were found in the backs of coves with little water movement.

The other 59 samples were found to be well below the state standard,

indicating the water quality in those areas were good. E. coli is a bacteria found in the intestinal tract of warm-blooded animals – including humans.

The testing will gather data to monitor the lake's environmental health. When samples show consistently high levels of E. coli, follow-up tests will be done. The effort is the first part of a five-year program. When complete, the study will have included coves from Bagnell to Truman dams. The bill for the testing will run AmerenUE \$15,000 annually.

No Pesticides in Most Tested Wells

The Missouri Department of Natural Resources found low-level pesticide concentrations in only four of 190 shallow aquifer wells tested between 2001



and 2006, according to a study by the department's Water Resources Center. From 2001 to 2006, the center, in cooperation with the Missouri Department of Agriculture, established a statewide groundwater monitoring network to test for pesticide contamination in shallow aquifers throughout the state.

The center tested 351 groundwater samples taken from 190 wells for eight different pesticides. A complete report of the study's findings is available online by visiting the department's Web page at [www.dnr.mo.gov/env/wrc/docs/pesticidedefinalreport.pdf]. The U.S. Environmental Protection Agency funded the study.

EPA required samples to be tested for metolachlor, atrazine, alachlor and simazine, four herbicides commonly used on agricultural crops.

For news releases on the Web, visit [www.dnr.mo.gov/newsrel/index.html]. For a complete listing of the department's upcoming meetings, hearings and events, visit the department's online calendar at [www.dnr.mo.gov/calendar/search.do].

Tom Hawley Environmental Chaplain

Rev. Tom Hawley has served as minister of pastoral care at St. Andrew Christian Church, Olathe, Kan., since its beginning in 1990. For the past 17 years, Hawley has worked with children, youth and families at Saint Luke's Hospital, Marillac Center for Children, The Children's Place, Intensive Family Counseling, and, since 1996 at the Crittenton Behavioral Center, Kansas City, Mo., where he serves as chaplain.

In 2006, the Kansas City environmental and community action group, Bridging The Gap, presented Hawley with its Environmental Excellence Award for Individuals. He was honored for his passion and commitment to the environment at home, at work and in his own church.

He developed and leads his church's environmental action group – SAGE – the St. Andrew Group for Ecology. With Hawley's guidance, the church invested in an energy-efficient, commercial dish sterilizer that allows the use of dishes and flatware rather than disposable serving ware for church functions. SAGE members volunteer to work on the protection and annual cleanup of the stream that runs through the church property, and provide monthly street cleanups in the area. Their community efforts include presenting an ecology fair with environmental speakers. They also are doing an ongoing study of the Kaw River that flows through Kansas City.

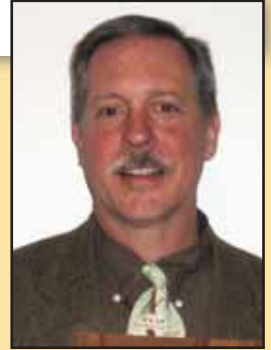
As St. Andrew's congregation grew, Hawley provided consultation in the selection of building materials, sustainable design features and energy-efficiency factors in planning a new church building. He worked with a team of architects from Berkeley, Calif., with the church building committee and plenty of "sweat equity" from the congregation. According to the church's Web site: "Designed to reflect St. Andrew's ongoing relationship with the mountain

community of El Higueral in El Salvador, the sanctuary was dedicated in 1999. Soaring trusses and a hearth-room built of straw bales are indicative of the progressive architecture and ecological approach to St. Andrew's construction. A meandering path from the parking lot up a sloping hill to the building's courtyard leads the visitor to transition from a secular to a spiritual frame of mind."

At work, Hawley is credited with starting and overseeing the recycling program at Crittenton Children's Center. The center is a faith-based, not-for-profit organization dedicated to providing innovative behavioral health services to children and families. Crittenton is part of the Saint Luke's Health System in Kansas City, Mo.

Hawley's wife, Rev. Holly McKissick, is senior pastor of St. Andrew Christian Church. Along with their children, grade-schoolers Eden and Ben, the family applies environmental "best use practices" in the operation and maintenance of their home. They recycle all they can, avoid pesticides, minimize lawn mowing, eat primarily local and organically grown foods and carpool whenever they can.

Summarizing Hawley's recognition by Bridging The Gap, Publications Coordinator Laura Bogue said, "Tom's passion for his environmental ethic is deeply rooted in the joy and solace he finds in nature, the heart of his 'creation spirituality,' and he continually works to deepen his own personal environmental ethic."



Tom Hawley

Photo by Laura Bogue, Bridging the Gap

Ben Knox Spirit of the River

Growing up along the Meramec River instilled a love of the river and nature in Ben Knox at an early age. He decided to major in conservation at the University of Missouri-Columbia. During the summers of his college years, he was employed as a naturalist at Meramec State Park and eventually became the park's assistant superintendent. In 1973, he landed a job working for the St. Louis County park system.

Early in his stint with St. Louis County, Knox participated in a joint federal-local study of the lower Meramec River. The congressionally authorized study called for the establishment of the Meramec River Recreation Area (MRRA) and a coordinating committee of member governments and citizens to manage the river.

One hundred years of city dwellers escaping the heat and congestion of St. Louis by enjoying the cool waters of the Meramec had taken its toll. Knox saw firsthand the obvious decline that had befallen his beloved river. The river had been trashed, water quality was terrible and hundreds of cabins were deteriorating along the banks. The spirit of the river that he remembered as a child was beginning to dwindle.

The challenge was immense – 108 miles of deteriorated river and no money to do anything about it. Fortunately, there was sufficient interest by several local citizens and officials. At the first MRRA meeting, held at a local mayor's favorite pub, the mayor picked up \$1.23 in change from the table and declared he was opening a bank account to fund restoration of the river.

Over the next 30 years, under the guidance of the MRRA and with the dedication of people like Knox, the Meramec River saw a renaissance on several fronts. The teamwork and cooperation

among the government agencies was remarkable. In addition to the \$1.23, millions of dollars have gone into the river for cleanup, restoration, land acquisition, conservation areas, development of local and state parks and numerous miles of connecting trails. Each agency expends funds to take care of its properties along the river. Literally thousands of people have helped to bring about this renaissance on the Meramec.

One mandate of the MRRA was to prepare a master plan for the Meramec's restoration. The plan is ongoing, always updated in response to the needs of each agency and community along the way. For years, Knox has been the stalwart keeper of that plan – organizing planning meetings, researching land ownership, prodding agencies and landowners to initiate projects, applying for grants and looking for partnerships. He was never seen without a roll of maps tucked under his arm.

Although retired from St. Louis County, Knox continues consulting for The Great Rivers Greenway District on projects in the Meramec River corridor. Throughout the years, there has been one thing that hasn't changed – Knox's personal and professional commitment to the Meramec River. It can be seen in the restored landscape and in the faces of the canoeists and hikers that enjoy the river and trail network. Thanks to Ben Knox, the spirit of the river has returned.



Ben Knox

Photo by Mary Lou Knox

St. Joe State Park

Where Recreation and Nature Come Together

by Jennifer Sieg
photographs by Scott Myers

St. Joe State Park is perhaps the most diverse state park in Missouri in terms of both its natural resources and its multitude of recreational opportunities. Much of its natural landscape was preserved by the former owners so it now offers some of the best examples of eastern Missouri's original biodiversity.

Thrill seekers and those just seeking some rest and relaxation alike will find resources at St. Joe State Park to quench their thirst for recreation. The adventurous can

zoom across sand flats in their off-road vehicles or challenge themselves on a mountain biking trail. Others may prefer to stroll on a trail, relax on a beach or just sit and fish. The diversity of recreation options is sure to suit the taste of everyone in the family.

Over the years, visitation to St. Joe State Park has steadily increased, with more than 850,000 attending in 2006. A recent study shows that this attendance generated a significant economic impact – \$13.5 million in sales for the local area.



(Top) Visitors from Cape Girardeau enjoy the swimming beach.

Members of the Black family, from Arnold, take a break from ATV riding.



(Above) The Rudroff family, from Farmington, prepares to travel the park's bicycle trails.

(Right) David Brown of Las Vegas, Nev., sets up camp during his coast-to-coast bike ride.



For visitors that like to explore trails, St. Joe State Park offers a greater variety of trails than any other Missouri state park. Equestrians, hikers, backpackers, mountain bikers, bicyclists and ORV riders will all find a place to enjoy their leisure pursuit within the park.

With 2,000 acres developed for recreation, one of the most popular activities is off-road vehicle riding. Motorcycles, all-terrain vehicles, dune buggies and four-wheel drive vehicles have access to 800 acres of open tailings. Snowmobiles are permitted during the winter months. In addition, motorcycles and ATVs can venture through wooded hillsides on numerous trails. An ORV rinse station is available to wash off the trail dust. Safety items such as helmets, flags and flag parts are required equipment and are available at the park office. Because public lands that allow this sport are limited, more than 59,000 ORV permits were sold at the park in 2006. Individuals and entire families flock to the park to enjoy this adventurous sport.

The park also offers opportunities for peaceful times. The park's 8,242 total acres provide hikers, equestrians and mountain bikers the opportunity to enjoy the sounds of nature on 15 miles of wooded trail. Five trailside campsites are open to equestrians or backpackers.

For bicyclists that prefer a smoother ride, a 13.8-mile bicycle trail traverses the park. For convenience, this paved trail connects to nearby Missouri Mines State Historic Site in Park Hills and a 1.7-mile connector links it to a city trail in Farmington. Hikers, skate boarders, roller skaters and cross country skiers also can use the trail. Hikers and mountain bikers can also explore the 1.5-mile Lakeview Trail. The first .2-mile of this trail is paved and accessible to people with disabilities.

While taking advantage of all of the trails the park has to offer, visitors can enjoy the park's natural features. The 7,000 acres of oak woodlands, glades, bottomland forests, native shortleaf pine forests and prairie openings give the park the fourth largest area of natural forested land in the state park system.

St. Joe State Park also is home to the largest of the few populations of celestial lily known to still exist in Missouri. Blankshire Savanna preserves woodlands and forests along Blankshire Creek. Pimville Prairie is an ongoing park project to reclaim a historic ridge top prairie and its many native grasses and wildflowers.

For those seeking a little more relaxation, the park offers four lakes for fishing – Monsanto (the largest at 25 acres), Apollo, JoLee and Pim. With man-powered boats and boats with electric trolling motors being all that is allowed, life on the lakes is definitely at a slower pace. Visitors can kick back and fish for white bass, crappie and catfish. Monsanto and Pim lakes also feature swimming beaches for those wanting to play in the water. A volleyball net is available at Monsanto Lake.

Conveniently located picnic areas allow visitors to break for a quick lunch before returning to their activities. There are also two reservable picnic shelters, a playground and a shelter near Monsanto Lake that is available on a first-come, first-served basis.

A unique feature of St. Joe State Park is a radio-controlled flying field. The Mineral Area Modeling Association maintains the grass runway. Model airplane enthusiasts can gain access to the area by stopping by the park office to obtain a key.

(Right) Chuck Paul and family, from Waterloo, Ill., ride their ATVs at St. Joe State Park. (Below) Chris White, Farmington, a member of the Mineral Area Modeling Association, takes off at the park's radio-controlled flying field.



With all there is to do, an overnight stay is a must. The park features two camping areas – one for equestrians and one for ORV enthusiasts. Those that don't own an ORV or horse can also camp in either area. The main camping area features 40 electric sites and 35 basic sites. A trail from this campground leads to the ORV riding area without having to use park roads. Campground amenities include firewood sales, laundry, a dump station, restrooms and showers. The equestrian campground offers 12 basic and 13 electric sites. The equestrian trail can be accessed from this camping area. Both camping areas have sites accessible to people with disabilities. Reservations can be made in advance for both campgrounds by calling 1-877-ICampMo or online at [www.mostateparks.com].

St. Joe State Park is located in the old "Lead Belt" area of Missouri, which once produced nearly 80 percent of the nation's mined lead. St. Joe Mineral Corp. was the largest of four principal mining companies in southeast Missouri. In 1972, St. Joe Mineral Corp. ceased operations and in 1976, they donated the land and milling complex to the state. St. Joe State Park opened to the public in 1982. In 1988, the milling complex opened to the public as Missouri Mines State Historic Site. The 19,000 square-foot mine-mill powerhouse has been developed into a large museum that interprets Missouri's lead mining history and displays old mining machinery and an outstanding mineral collection.

The park's setting within a former mining site presents unique management challenges. The U.S. Environmental Protection Agency has consistently questioned the operation of the park because of lead residues from the mining

operations. A number of projects have been completed to address concerns such as lead contamination, erosion control and sediment loss. For example, the main dam was strengthened to withstand earthquakes at a cost of about \$4.5 million. Additional projects have included storm water control basins that limit sediment losses, stabilization of erosion-prone areas, enhancement of vegetation, modification of a swimming beach and construction of a vehicle wash station. More enhancements are under consideration.

Park staff get a significant amount of help maintaining the park. In 2006, volunteers serving as campground hosts, park aides and trail workers donated more than 6,000 hours of their time. Other groups and court appointees contributed nearly 4,000 hours, as well. In addition, the park has an eight-man crew from the Missouri Department of Corrections to help with park projects and maintenance. Two friends groups, Friends of St. Joe State Park and Missouri Dirt Riders, have been active in applying for and receiving federal grants to use for trail maintenance. Many organizations also host annual special events at the park including mountain bike races, motorcycle and ATV races, the St. Joe Rendezvous, a wilderness running camp and the St. Francois County Heartwalk.

St. Joe State Park is located in Park Hills, off Highway 32 on Pimville Road. For more information, call the park at (573) 431-1069 or the Missouri Department of Natural Resources toll free at 1-800-334-6946 (voice) or 1-800-379-2419 (Telecommunications Device for the Deaf) or visit [www.mostateparks.com].

Jennifer Sieg is an information specialist with the department's Division of State Parks.



Career Connection

SHRINKING RESOURCE EQUALS GROWING FIELD

by Larry Archer
photographs by Scott Myers

A favorite pop culture party game asks players to connect anyone in Hollywood to actor Kevin Bacon within “six degrees of separation.” Water specialist David Williams can claim only two degrees of separation between himself and anyone in northwest Missouri who has drawn a glass of tap water.

Williams has spent much of the past 11 years helping operators of drinking water facilities throughout the Kansas City and northwest Missouri areas provide their customers with water that meets the department’s high quality standards.

“I’ve been able to help a lot of [drinking water] operators,” Williams said. “As far as a rewarding position, the one I’m in now is the best.”

Currently assigned to the Northwest Missouri Satellite Office of the department’s Kansas City Regional Office, Williams spends the bulk of his time working with water and wastewater plant operators in a 12-county area of northwest Missouri.

“We get to do a lot, but the primary function of this position is providing on-site technical assistance and training to drinking water plant operators,” said Williams, who also conducts classroom training sessions

and gives conference presentations. “So I’m a teacher, too.”

As half of a two-person satellite office staff, Williams takes on a variety of duties, including inspections, complaint investigations, Environmental Assistance Visits, and technical assistance training. He has been



part of a regional team looking at the long-term water needs of northwest Missouri.

That means he spends a great deal of time on the road traveling and working closely with plant operators, municipal managers and elected officials. “There’s very little overnight travel, but I do see a lot of highway,” he said.

David Williams, right, discusses water quality with Jim Palmer, center, and Joe Anstein of the Missouri Rural Water Association.



(Top and above) David Williams, right, and Randy Napp, operator of the Craig water plant, work together to restore water services to Big Lake following extensive spring rains that flooded the area.

As communities grow, so do the demands for water and the need for water specialists. The search for qualified water specialists can be difficult. "It wasn't that long back that the regions were beating the bushes for water specialists," Williams said.

Being an entry-level water specialist for the Missouri Department of Natural Resources requires a Class B water or wastewater operator certification. Williams' advanced water specialist position requires a Class A certification, the equivalent of having six years of actual water or wastewater facility experience.

The position does not require a college degree, but some Missouri schools offer

two-year associate degrees in related fields. Formal education can replace a portion of the required operating experience.

Regardless of how one becomes a water specialist, there is a need for continuing education. Public water supplies face increasingly stringent state and federal regulations, and a water specialist helps operators understand and make these changes. In order to do this, a water specialist

must stay current on water treatment technologies and requirements.

Williams came to his current position by working his way up through a privately owned water company in the Kansas City area before becoming a water plant manager.

"My background is water and wastewater," he said. "Back in the '70s I started out as a water meter reader."

Since that time, Williams learned the importance of clean water and the role the operators – and those who assist them – play in the health and well-being of everyone.

"We don't get new water; we get recycled water," he said. "We have to take care of the water we have, because that's all there is."

Much of Williams' job satisfaction comes from seeing the results of helping a new plant operator improve operations or showing an experienced drinking water operator enhanced methods of protecting the water quality of local customers.

"I wouldn't hesitate to tell anyone who walks up to me that I love my job," he said.

For more information on this or other positions, call the department toll-free at 1-800-361-4827 and ask for the Human Resources Program.

Larry Archer is division information officer for the department's Field Services Division.

Tree-Planting Effort Sets State Park Record

story and photo by Sue Holst



Jason Pelliccione of Florissant was among the 400 Boy Scouts who planted 4,000 trees to help stabilize the banks of the East Fork of the Black River through Johnson's Shut-Ins State Park.

Boy Scouts from the St. Louis area have a long tradition involving Johnson's Shut-Ins State Park near Lesterville. This spring, a new chapter in this history was written when the Scouts were able to give back to the park where they often come to hike and camp.

Approximately 400 Boy Scouts and leaders did a volunteer service project May 5 to help restore the park following the December 2005 breach of the Taum Sauk reservoir. The Scouts, who were from the Greater St. Louis Area Council of the Boy Scouts of America, ranged in age from 11 to 18. The "One Day of Service" volunteer project was organized by members of the Shawnee Lodge of the Order of the Arrow — an honor society for Scouts.

The volunteer project totaled 2,800 hours of service, making it the largest one-day volunteer effort in the history of the state park system. During the

volunteer project, Scouts were divided into groups with different assignments. Several groups were assigned to plant trees to establish a forest corridor along the banks of the East Fork of the Black River, which has been restored to address environmental problems associated with the breach. The 4,000 trees and shrubs, including sycamore, American elm, sumac and rough-leaved dogwood, will help stabilize the riverbanks.

Several other groups removed cottonwood sprouts in the park's fen, a wetland natural area that originally contained many rare plants. Removing the cottonwood sprouts that had begun to grow in the fen will allow more light to help ground-layer wetland plants re-establish before letting the new forest canopy develop.

Two groups worked in the scour channel that was created by the water rushing down Proffit Mountain into

the park. One group did a walk-through looking for any manmade hazards while another group picked up different sizes of rocks that will eventually be used in new park construction at Johnson's Shut-Ins.

Other Scouts assisted with several projects at nearby Taum Sauk Mountain State Park, including trail work and helping to restore a glade.

The Department of Natural Resources provided the Scouts with a camping area, lunch and dinner on Saturday, transportation to and from work zones, and equipment such as shovels needed for the work. These items were partially funded by a \$10,000 grant from Recreational Equipment Inc. to the Missouri State Parks Foundation.

Sue Holst is the division information officer for the department's Division of State Parks.



**MISSOURI DEPARTMENT
OF NATURAL RESOURCES**
P.O. Box 176
Jefferson City, MO 65102-0176

PRST STD
U.S. Postage
PAID
Permit No. 225
Liberty, MO
64068